CLAIMS

1. A connector assembly for communicating signals between a vehicle chassis and a matable vehicle body, the assembly comprising:

a first housing mounted to one of the chassis and the body, the first housing having a first contact; and

a second housing mounted to the other of the chassis and the body and matable with the first housing upon mating of the chassis and the body, the second housing having a second contact operatively engageable with the first contact for communicating the signals, and wherein the first contact is insertable into the second housing after substantial mating of the first and second housings with an absence of insertion force upon the first contact.

2. The connector assembly of claim 1, wherein the first and second contacts are not operatively engaged upon insertion of the first contact into the second housing.

3. The connector assembly of claim 1, further comprising a rotational mechanism, wherein a portion of one of the first and the second housings is rotatable to an engaged position by said rotation mechanism, and wherein the first and the second contacts are releaseably engaged for communicating the signals upon such rotation of said portion of one of the first and second housings to the engaged position.

4. The connector assembly of claim 3, wherein the rotational mechanism includes a locking feature for releasably locking said portion of one of the first and second housings in the engaged position.

5. The connector assembly of claim 1, wherein the first contact is a pin having a pin circumference, and wherein an operative engagement is between at least a portion of said pin circumference and said second contact.

6. The connector assembly of claim 1, further comprising:

a transport mechanism operatively connected to the first contact for translatably inserting the first contact into and retracting the first contact from the second housing.

7. The connector assembly of claim 6, further comprising:

a force sensor operatively connected to the transport mechanism for signaling the transport mechanism to retract the first contact from the second housing during insertion thereof upon sensing a predetermined amount of insertion force.

8. The connector assembly of claim 1, further comprising:

an alignment mechanism operable between the first housing and the second housing for determining relative alignment of the first and the second housings for permitting mating of the first and second housings.

9. The connector assembly of claim 8, wherein the alignment mechanism includes a sensor selected from the group consisting of a proximity sensor and an infrared sensor.

10. The connector assembly of claim 8, wherein the alignment mechanism includes a mechanical tab disposed on one of the first housing and the second

housing and matable with a complementary receptacle on the other of the first housing and the second housing.

11. The connector assembly of claim 1, wherein the first housing is formed with a first opening, and wherein the second housing is formed with a second opening matable with the first opening to form a pass-through for passing fluids between the body and the chassis.

12. The connector assembly of claim 1, further comprising:

a first flexible mount for mounting the first housing to one of the chassis and the body; and

a second flexible mount for mounting the second housing to the other of the chassis and the body;

wherein the mated first and second housings are relatively movable with respect to the body and the chassis at the first and the second flexible mounts.

13. The connector assembly of claim 1, wherein substantial mating of the first and second housing is defined by 70% - 100% of complete mating.

14. The connector assembly of claim 1, wherein the first housing has an outer circumference and a plurality of first contacts, wherein the first contacts are a plurality of pins, wherein the plurality of pins includes a first type of pins and a second type of pins, wherein the first type of pins are larger than the second type of pins, and wherein the first and second types of pins are relatively located with respect to one another such that the first type of pins are located between the outer circumference of the

first housing and the second type of pins for providing structural support to the connector assembly and for shielding the second type of pins from electromagnetic interference.

15. A connector assembly for communicating signals between a vehicle chassis and a matable vehicle body, the assembly comprising:

a first housing mounted to one of the chassis and the body, the first housing having a first contact;

a second housing mounted to the other of the chassis and the body and matable with the first housing upon mating of the chassis and the body, and the second housing having a second contact operatively engageable with the first contact for communicating the signals, and wherein the first contact is insertable into the second housing after substantial mating of the first and second housings with an absence of insertion force upon the first contact, wherein the first and second contacts are not operatively engaged upon insertion of the first contact into the second housing;

a rotational mechanism, wherein a portion of one of the first and the second housings is rotatable to an engaged position by said rotation mechanism, and wherein the first and the second contacts are releaseably engaged for communicating the signals upon such rotation of said portion of one of the first and second housings to the engaged position, wherein the first contact is a pin and an operative engagement is by at least partial contact between the pin and the second housing.

16. A method of communicating signals between a vehicle chassis having a first housing and a matable vehicle body having a second housing matable with the first housing, the method comprising:

moving at least one of the chassis and body towards the other;

sensing the relative positions of the first housing and the second housing;

aligning the body and the chassis with one another based upon the sensed relative positions;

mating the first housing and the second housing with one another;

translating a first contact from one of the housings into the other of the housings, wherein said translating is characterized by an absence of insertion force upon the first contact; and

rotating said other housing to an engaged position such that the first contact operatively engages with a second contact in said other housing, thereby communicating the signals between the body and the chassis.

17. The method of claim 16, further comprising:

releasably locking said other housing in the engaged position.

18. The method of claim 16, further comprising:

validating signaling communication circuits in the body and the chassis to ensure operative engagement of the first and second contacts with each other.

19. The method of claim 16, further comprising:

moving at least one of the chassis and the body apart from the other.

20. The method of claim 16, further comprising retracting the first contact from the other housing, and separating the first housing and the second housing from each other, wherein said retracting is done prior to said separating.